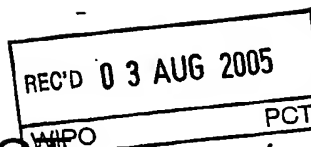


PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



PCT

13/10

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2005/051053

International filing date (day/month/year)
29.03.2005

Priority date (day/month/year)
30.03.2004

International Patent Classification (IPC) or both national classification and IPC
G02B3/14, G02B26/02

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/B2005/051053

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/051053

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-25
Inventive step (IS)	Yes: Claims	
	No: Claims	1-25
Industrial applicability (IA)	Yes: Claims	1-25
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

1 Reference is made to the following documents:

- D1: EP-A-1 293 807 (LUCENT TECHNOLOGIES INC) 19 March 2003 (2003-03-19)
- D2: US 2001/024486 A1 (HERBERT BRIAN KENNETH) 27 September 2001 (2001-09-27)
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- D4: US-B1-6 369 954 (BERGE BRUNO ET AL) 9 April 2002 (2002-04-09)
- D5: US-B1-6 191 881 (TAJIMA EIICHI) 20 February 2001 (2001-02-20)

2 ARTICLE 6 PCT

- 2.1 The application does not meet the requirements of Article 6 PCT, for the following reasons:
- 2.2 Claims 1, 25 are not supported by the description as required by Article 6 PCT, as their scope is broader than justified by the description and drawings. The claims refer to general optical lenses comprising two fluids, however the description refers to lenses based on the electrowetting principle.
- 2.3 Claims 1 and 25 refer to the optical axis of the lens which is not prior defined. It remains unclear how the "orientations" and the "positions" of the electrodes are arranged.
- 2.4 The term "angular orientations" in claim 1 and "linear positions" in claim 25 appear confusing as to whether they refer to the electrode segments and/or the lens surface characteristics.
- 2.5 It is unclear in claims 1 and 25 how the sensing arrangement functions and what lens surface characteristics are determined.

3 INDEPENDENT CLAIM 1

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A controllable optical lens (cf. Fig. 1, 2, 3, 6, 7), comprising:

- a chamber housing first and second fluids (air and droplet 12 in Fig. 1, 2, 3, 6; or droplet 102 and fluid 802 in Fig. 7), the interface between the fluids defining a lens surface;
- an electrode arrangement (106, 116) for electrically controlling the shape of the lens surface and for sensing the shape of the lens surface, the electrode arrangement comprising a plurality of electrode segments (106a, 106b, 106c, 106d) at different angular orientations about an optical axis of the lens; and
- a sensing arrangement for determining, from at least the plurality of electrode segments (106a, 106b, 106c, 106d), lens surface characteristics at a plurality of angular orientations.

- 3.2 Furthermore, in the same context as the application, D3 hints towards determination of the optical strength of the meniscus by measuring capacitance (cf. pg. 7, ln. 14-19). The skilled person would easily employ alternative electrode arrangements as known by D1 (cf. Fig. 2B) or D2 (cf. Fig. 4) or D4 (cf. Fig. 6) or D5 (cf. Fig. 1) to achieve such measurement (Article 33(3) PCT).

4 INDEPENDENT CLAIM 25

- 4.1 Claim 25 is an alternative to claim 1 by the fact that it is the different linear positions instead of the different angular orientations used for the position of the plurality of electrode segments and the determination of the lens characteristics.

- 4.2 The present application does not meet the criteria of Article 33(1) PCT, because the

subject-matter of claim-25 is not new in the sense of Article 33(2) PCT.

Document D2 discloses in Fig. 1-4 and the related text a linear arrangement of electrodes (cf. Fig. 3a) used to control and sense the lens surface characteristics (cf. Fig. 4; par. [0025]).

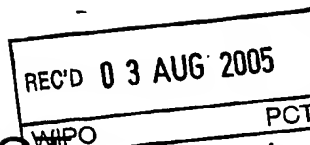
- 4.3 D4 (cf. Fig. 6) discloses a linear arrangement of electrodes in the same context as D1 or D2 or D3 (Article 33(3) PCT).

5 DEPENDENT CLAIMS 2-24

Dependent claims 2-24 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step because they concern known or standard structural aspects of controllable lenses (Article 33(2) and (3) PCT).

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Authorized Officer

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Telephone No. +49 89 2399-2471



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/051053

Box No. I Basis of the opinion

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/051053

**Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-25
Inventive step (IS)	Yes: Claims	
	No: Claims	1-25
Industrial applicability (IA)	Yes: Claims	1-25
	No: Claims	

2. Citations and explanations

see separate sheet

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2 ARTICLE 6 PCT

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3 INDEPENDENT CLAIM 1

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Document D1 discloses (the references in parentheses applying to this document):

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- a chamber housing first and second fluids (air and droplet 12 in Fig. 1, 2, 3, 6; or droplet 102 and fluid 802 in Fig. 7), the interface between the fluids defining a lens surface;
- an electrode arrangement (106, 116) for electrically controlling the shape of the lens surface and for sensing the shape of the lens surface, the electrode arrangement comprising a plurality of electrode segments (106a, 106b, 106c, 106d) at different angular orientations about an optical axis of the lens; and
- a sensing arrangement for determining, from at least the plurality of electrode segments (106a, 106b, 106c, 106d), lens surface characteristics at a plurality of angular orientations.

- 3.2** Furthermore, in the same context as the application, D3 hints towards determination of the optical strength of the meniscus by measuring capacitance (cf. pg. 7, ln. 14-19). The skilled person would easily employ alternative electrode arrangements as known by D1 (cf. Fig. 2B) or D2 (cf. Fig. 4) or D4 (cf. Fig. 6) or D5 (cf. Fig. 1) to achieve such measurement (Article 33(3) PCT).

4 INDEPENDENT CLAIM 25

- 4.1** Claim 25 is an alternative to claim 1 by the fact that it is the different linear positions instead of the different angular orientations used for the position of the plurality of electrode segments and the determination of the lens characteristics.

- 4.2** The present application does not meet the criteria of Article 33(1) PCT, because the

subject-matter of claim 25 is not new in the sense of Article 33(2) PCT.

Document D2 discloses in Fig. 1-4 and the related text a linear arrangement of electrodes (cf. Fig. 3a) used to control and sense the lens surface characteristics (cf. Fig. 4; par. [0025]).

- 4.3 D4 (cf. Fig. 6) discloses a linear arrangement of electrodes in the same context as D1 or D2 or D3 (Article 33(3) PCT).

5 DEPENDENT CLAIMS 2-24

Dependent claims 2-24 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step because they concern known or standard structural aspects of controllable lenses (Article 33(2) and (3) PCT).